

Date: Sat, 14 May 94 04:30:09 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #142  
To: Ham-Ant

Ham-Ant Digest                      Sat, 14 May 94                      Volume 94 : Issue 142

Today's Topics:

                    Loop Skywire  
                    More AM STATIONS help....  
                    radar detectors (3 msgs)  
                    recommendation for high gain 2M mobile  
                    Wind loads

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Thu, 12 May 1994 14:10:08 GMT  
From: ihnp4.ucsd.edu!newshub.sdsu.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!  
EU.net!sunic!psinnntp!psinnntp!arrl.org!zlau@network.ucsd.edu  
Subject: Loop Skywire  
To: ham-ant@ucsd.edu

Jim Grubs, W8GRT (jgrubs@voxbox.norden1.com) wrote:

: > One thing to be careful of is to make it as close to a square as possible. Too  
: > far from a square and it starts to exhibit some sharp lobes, depending on the  
: > exact configuration and frequency, height, etc. Actually, I think a circle  
: > would be best but that's pretty hard to do for most of us. Mine was within a  
: > few feet of being square.  
:  
: I saw a loop demo at Dayton 10 or 12 years ago that pretty well  
: proved that loop shape doesn't make a darn bit of difference if  
: the circumference is  $\ll \lambda/2$ .

True, for very small loops the shape doesn't affect the pattern, though I can think of some shapes that could increase the losses.

However, the loop being discussed is a full wavelength at the lowest frequency, and multiple wavelengths at harmonic frequencies. Thus, shape does make a difference in the actual pattern. On the other hand, the actual pattern is often unpredictable, given the amount of interfering objects such an antenna normally encounters.

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Zack Lau KH6CP/1                      2 way QRP WAS  
   8 States on 10 GHz  
Internet: zlau@arrl.org    10 grids on 2304 MHz

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Date: 12 May 94 05:04:41 GMT  
From: agate!howland.reston.ans.net!darwin.sura.net!mother.usf.edu!luna!  
shadrick@ucbvax.berkeley.edu  
Subject: More AM STATIONS help....  
To: ham-ant@ucsd.edu

First, Thank you to everyone who help me with the AM Station questions.  
Okay, I've read Answers to Frequency asked Questions about long-distance reception of local AM ... stations.

So, I've become very interested in this topic, and have began to TRY and pick up some stations.

Here is where I would like more help with.

I own a DENON model DRA-25 (140W) receiver with digital display.

On the back there is an ANTENNA TERMINALS section.  
It looks like this...

-----ANTENNA TERMINALS-----

FM		GAD	AM
300 ohms	75 ohms	3	3
/-----/	/-----/	3	3
(0)	(0)	(0)	(0)
		LOOP	ANT

(0) represents where a wire should go.....

/-----/ represents diagrams shown on back.....

Now, what I would like to know is WHAT and HOW I should go about setting this up so that I can TRY and get some stations. I really want to get 700 WNW (I live in Tampa, Florida it is a Cincinnati station). Someone suggested copper wire. What size?

Or is there an antenna I should seek out and try and buy? Or can someone send me a diagram on HOW to make an antenna. I've really enjoyed trying to get some stations, I find it fascinating, and would like to try it some more, however, it has gotten frustrating without having a good antenna setup. It was cool getting stations in NY, Nashville, and Louisiana though! Any help would be great! Oh, also, there is a Spanish Station I get right near 700, is there a way to (mask) that station out?

Thanks again... Sorry for all the newbie questions.

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Date: Thu, 12 May 1994 14:01:42 GMT  
From: ihnp4.ucsd.edu!newshub.sdsu.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!  
EU.net!sunic!psinnntp!psinnntp!arrl.org!zlaw@network.ucsd.edu  
Subject: radar detectors  
To: ham-ant@ucsd.edu

Ken A. Nishimura (kennish@kabuki.EECS.Berkeley.EDU) wrote:  
: In article <11MAY94.16120300.0043@UNBVM1.CSD.UNB.CA>,  
: MORROW J <K2KA@UNB.CA> wrote:

: > Firstly, in order to detect a specific frequency, how is this  
: > accomplished? Does the detector produce a matching frequency to  
: > compare with the incoming radar signal?

: Same way that most all radios tune a specific station. Most  
: all radar detectors are superhet receivers. For example, let's  
: say you are looking for a 24.150 GHz K band radar.... You would  
: locally generate a frequency (LO) say 25.150 GHz and mix it in  
: a microwave diode. Then you would look for a 1 GHz mix product,  
: which is then filtered and detected. You can tune around the  
: frequencies of interest by tuning the LO, so if you wanted to  
: look for Ka band, you would retune your LO to 35 - 38 GHz.  
: I doubt any detectors out there are using direct conversion.

: >Can police "electronically" determine if you possess a

: >radar detector?

: Yup, those Canadian cops have them. Every superhet receiver  
: leaks a bit of LO, as no mixer has infinite reverse isolation.  
: Radar detectors are real bad since they use a passive mixer

There are balanced passive mixers with fairly decent LO rejection.  
One of the biggest 10 GHz amateur station relies on mixer LO  
rejection--his IF is 28 MHz. On the other hand, there are  
some active mixers that don't do such a great job of isolating  
the LO from the IF port.

: due to the high frequencies. The LO goes right back out the  
: antenna. Some real cheap units will set off another detector.

: >If so, is there a method to mask the radiation emitted  
: >from the detector, but still ensure its sensitivity? For example, wrap  
: >the detector in aluminum foil leaving only the front (the horn style  
: >antenna) exposed.

: Wrapping the device may help a bit, but since the LO goes out  
: the antenna, it's tough. Some detectors which use low side  
: injection (LO lower than desired RF) will make the waveguide  
: from the antenna to the diode just above cutoff, so that the lower  
: frequency LO doesn't go back out. This only works for single  
: band devices. Other ways are using a perturbation (i.e. screw)  
: in the waveguide to notch out the LO frequency. This works  
: to an extent.

A neat device that increases the LO isolation by 20 dB with only  
0.5 dB loss (typical) is a ferrite isolator. New, these devices  
sell for \$100 or more. But, you can buy mystery isolators of  
unknown frequency coverage quite inexpensively :-).

The best solution may be to use a PHEMT preamplifier, which often  
has quite a bit of reverse isolation. In addition, you can increase  
the sensitivity of a 10 or 24 GHz receiver by 10 dB or more. A  
difficulty is at 24 GHz, it is generally accepted by many amateurs  
that devices will vary too much to allow easily copied designs,  
unless you use transistor chips and lead bonding equipment.

You can also make bandpass filters out of a section of waveguide.  
You essentially convert the waveguide into a series of tuned cavities.

: >Is there a method of making it undetectable and perhaps stealthy?

: Change the LO. Those radar detector detectors are also superhet  
: devices, that look for the LO that most units use. If you want

: to spend the money and effort, you can make your detector use  
: a non-standard LO. You could also make a radar  
: detector detector detector on the same principle. Look for  
: the cop's LO.

This wouldn't work if the radar detector was looking for the  
second local oscillator. Many detectors have a swept second  
local oscillator that allows the radar detector to function  
as a scanner.

One thing that people don't realize is how weak a signal one  
can detect with a good microwave receiver. For instance, WA10UB  
could hear K1WHS running just -60 dBm, or 1 nanowatt, on 1296 MHz,  
even though they were about 60 miles apart! Sheet metal  
shielding probably isn't good enough to really isolate a typical  
oscillator over short distances (few hundred feet) Lossy materials,  
such as trees and concrete, seem to do a much better job at  
microwaves.

--

Zack Lau KH6CP/1                    2 way QRP WAS  
                                     8 States on 10 GHz  
Internet: zlau@arrl.org    10 grids on 2304 MHz

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Date: Thu, 12 May 1994 18:30:40 GMT  
From: gatekeeper.us.oracle.com!barrnet.net!netnews.synoptics.com!  
news@decwrl.dec.com  
Subject: radar detectors  
To: ham-ant@ucsd.edu

>I won't go into details since I may be abetting a crime, but  
>I think you get the drift. Since we are on the  
>subject, the above is for education only, and I do NOT  
>recommend that you do any of the above. Drive at  
>or below the speed limit.  
>  
>-Ken

If you drive below the limit stay out my way :>)  
Dave

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Date: Thu, 12 May 94 02:04:39 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!  
newsfeed.pitt.edu!dsinc!wells!w2up!barry@network.ucsd.edu  
Subject: radar detectors

To: ham-ant@ucsd.edu

MORROW J <K2KA@UNB.CA> writes:

> I have many questions about the operation of radar detector. Firstly,  
> in order to detect a specific frequency, how is this accomplished? Does  
> the detector produce a matching frequency to compare with the incoming  
> radar signal? Can police "electronically" determine if you possess a  
> radar detector? If so, is there a method to mask the radiation emitted  
> from the detector, but still ensure its sensitivity? For example, wrap  
> the detector in aluminum foil leaving only the front (the horn style  
> antenna) exposed. Is there a method of making it undetectable  
> and perhaps stealthy?  
>

I believe it's just a wideband receiver. Yes, they can determine if you  
have a radar detector. I've seen some advertised that claim to be  
detect-proof, but don't remember details or names.

=====  
Barry N. Kutner, W2UP                    Usenet/Internet: barry@w2up.wells.com  
Newtown, PA                            Packet Radio: W2UP @ WB3JOE.#EPA.PA.USA.NA  
                                      Packet Cluster: W2UP >K2TW (FRC)  
.....

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Date: Thu, 12 May 1994 22:55:39 GMT  
From: ihnp4.ucsd.edu!news.acns.nwu.edu!math.ohio-state.edu!howland.reston.ans.net!  
vixen.cso.uiuc.edu!milo.mcs.anl.gov!anagram.mcs.anl.gov!lent@network.ucsd.edu  
Subject: recommendation for high gain 2M mobile  
To: ham-ant@ucsd.edu

I am looking for suggestions for high gain 2M mobile antennas. dual banders  
would be nice (70cm). I live in the mountians and we need all the gain  
we can get.  
lent@mcs.anl.gov

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Date: Wed, 11 May 1994 09:34:39 -0400  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!math.ohio-  
state.edu!news.acns.nwu.edu!ftpbox!mothost!lmpsbbs!NewsWatcher!  
user@network.ucsd.edu  
Subject: Wind loads  
To: ham-ant@ucsd.edu

In article <2qma5e\$cb0@agate.berkeley.edu>, ron@etch-eshop.Berkeley.EDU  
(Ronald Viegelaahn) wrote:

>  
>  
> Can anyone provide the answer to the following 2 questions ?  
>  
> 1: How many psi does a 100 mph wind generate at sea level ?

Courtesy of the Commercial Products book from Rohn Towers (1991),  
the answer is 40 psf, or 0.27777 psi. when measured 30 feet above  
the ground surface in an unobstructed flow.

>  
> 2: How much does 1 cubic yard of concrete weight ?

Same source, 3,780# for a 3,000 psi mix, which is the absolute  
minimum acceptable for the Rohn foundation designs.

>  
> 73  
>  
> ron@etcheshop.Berkeley.EDU

However, several words of caution:

- A) The recommended maximum design wind speeds were changed in  
RS-222D/ ANSI A58.1-1982. Your local building code may not reflect  
the current commercial practice standards.
- B) Local or state building codes for earthquake design requirements  
may significantly alter the foundation design normally recommended by  
the tower manufacturer.
- C) When evaluating the cross-sectional area of the antenna, remember  
that the worst case windloading usually will occur when the antenna is  
at an angle to the wind, not facing directly into the wind. You must  
first calculate both the head-on and right angle loads, then compute  
the worst case load from there.

--

Karl Beckman, P.E. < The difference between genius and stupidity >  
Motorola Comm - Fixed Data < is that genius has its limits. -Unknown >

The statements and opinions expressed here are not those of Motorola Inc.  
Amateur radio WA8NVW @ K8MR.NEOH.USA.NA NavyMARS VBH @ NOGBN.NOASI

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Date: 12 May 1994 01:40:09 -0600  
From: mnemosyne.cs.du.edu!nyx.cs.du.edu!not-for-mail@uunet.uu.net

To: ham-ant@ucsd.edu

References <gganderson.354.0@augustana.edu>, <D>, <CozBpI.Crn@fore.com>nd.r  
Subject : Re: kites <--> antennas ?

Out of interest, there is an International Kite Festival on 21/22 May at the Isle of Wight, England. This information comes from Radio Communications magazine, as the Wireless Museum will be using kite aeralials.

Sadly, I probably won't be able to make it either...

David

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Date: 12 May 1994 21:05:42 GMT  
From: ihnp4.ucsd.edu!newshub.sdsu.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!  
vixen.cso.uiuc.edu!bradley.bradley.edu!augustana.edu!gganderson@network.ucsd.edu  
To: ham-ant@ucsd.edu

References <1994May11.160412.18711@newsgate.sps.mot.com>,  
<sNo7Lc3w165w@voxbox.norden1.com>, <1994May12.141008.126@arrl.org>bradley  
Subject : Re: Multiple Loops? (was Loop Skywire)

In article <1994May12.141008.126@arrl.org> zlau@arrl.org (Zack Lau (KH6CP))  
writes:

>However, the loop being discussed is a full wavelength at the lowest  
>frequency, and multiple wavelenths at harmonic frequencies. Thus,  
>shape does make a difference in the actual pattern. On the other  
>hand, the actual pattern is often unpredictable, given the amount  
>of interfering objects such an antenna normally encounters.

This is a lot of wire, but would it be feasible/desirable  
to have loops suspended within the loop, one for each band  
of interest? I assume there would be interactions between  
the loops, but maybe to your advantange as you could build  
an effectively larger loop through combinations of the  
loops. I thinking here of squares within the square.

Just curious....

Kevin, KB9IUA

\* \* \* \* \*  
Kevin L. Anderson, Geography Dept., Augustana College  
Rock Island, Illinois 61201 USA phone: (309) 794-7325  
e-mail: gganderson@augustana.edu or kla@helios.augustana.edu  
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End of Ham-Ant Digest V94 #142

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